

LATE NEWS

Electric Power Research Institute authorized \$12 million over three years for "cold fusion" research. Funding may hinge on future experiment results and on an investigation of a fatal accident. EPRI already spent \$2 million. Department of Energy halted funding for cold fusion in 1989.

Shutdown and investigation at Wolf Creek nuclear unit delayed merger of two Kansas utilities.

Kentucky Utilities Co. and East Kentucky Power Co-op bought six 100-MW ABB Power Generation gas turbines for \$130 million.

Energy legislation reshapes industry

Industry groups lobby for last-minute changes

WASHINGTON—Attention to energy policy and debate about the structure of the electric power industry intensified as the House and Senate look ahead to working out a compromise in energy legislation.

The administration is likely to sign into law a compromise energy bill worked out by a conference committee. Lobbying is expected to intensify as the legislation draws closer to final form, possibly entering conference in April.

The resulting new, comprehensive energy package, under discussion in various forms for several years, would drastically change how the industry operates. The Senate passed its version, S.2166, on Feb. 19.

Markup on H.R. 776 was completed on March 11 as the Energy and Commerce Committee approved the bill by 42-1. Amendments included provisions

on reliability, and transmission access/retail wheeling with native-load protections. Changes also broaden appliance efficiency standards, making them more in line with industry standards. Another change promotes industrial energy efficiency by encouraging states to work with utilities and federal grants for trade associations, according to House energy staff. Additional changes could occur on the floor.

It's unclear what a House-Senate compromise would contain. The House version, as of this writing, didn't include provisions to streamline nuclear plant licensing, while the Senate bill doesn't address open transmission access. The House bill also seems to provide more consumer protections, while the Senate version relies more on free-market principles.

House staff noted that a revision to

the Public Utilities Holding Company Act is the "red-hottest" provision.

The Senate bill passed with a resounding 94-4 vote. The legislation, an amended rewrite of year-old bill, S.1220, left out controversial provisions on drilling in a protected Arctic area and on auto-efficiency standards.

Sen. J. Bennett Johnston (D-LA) and Sen. Malcom Wallop (R-WY) sponsored the bill, which passed a year after President Bush released the National Energy Strategy.

While the Department of Energy and administration isn't completely satisfied with the Senate bill, a veto seems unlikely if what emerges from conference committee is similar. (See related story for a one-year update of NES).

The Senate bill included:
• Revisions in the Public Utility Holding Company Act of 1935 and the Federal

Power Act with proposed creation of Electrical Wholesale Generators, EWGs would be exempt from PUHCA, and could be owned by holding companies, utilities, or non-utilities. A few restrictions protect consumers. State regulators say EWGs would shift regulatory powers toward federal regulators. The House bill has PUHCA revisions.

• Streamlined nuclear plant licensing.
• Promotions for renewable energy sources, energy conservation, alternate-fuel vehicles, including electric, and advanced clean-coal and nuclear-power support. The House bill includes similar language.

Investor-owned utilities generally oppose changes to their control of transmission resources. Wholesale interests want protection from competition with utilities, but they also want open access. The Large Public Power Council prefers voluntary involvement. Cooperatives and municipals like access, but with protections.

High testing costs close life-extension pioneer

Mark T. Hoske, News Editor

The high cost of required testing and low cost of replacement power justified the permanent closing of the Yankee Rowe nuclear plant, said the plant's operating company.

The announcement is significant for the nuclear industry. The 32-year-old unit had been a likely candidate as first to apply for an operating license extension and pave the way for the rest of the industry.

A statement from the operator said, "the interest of consumers would be best served by permanently shutting down the Yankee plant and buying less costly, available power over the next eight years" of the operating license.

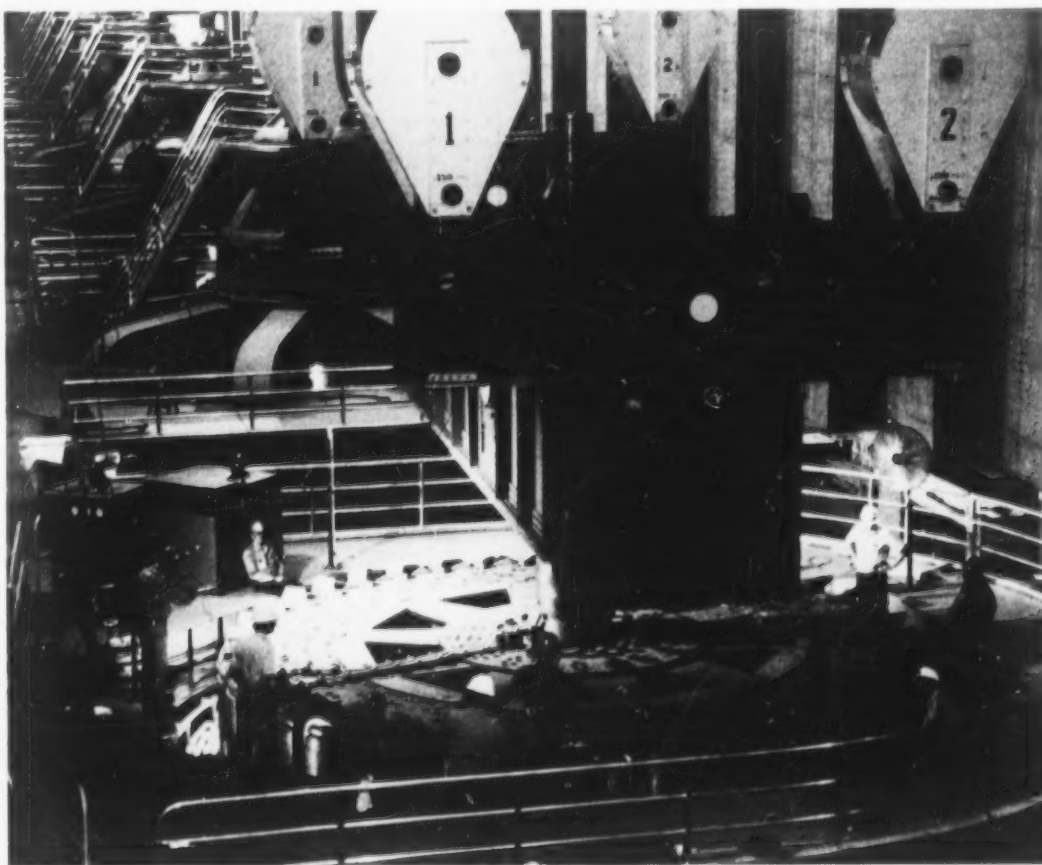
The industry downplayed the decision's effect on nuclear plant relicensing efforts, even though nuclear industry opponents hail this as a victory.

The industry had previously targeted the plant for relicensing, but anti-nuclear forces then claimed core embrittlement made Rowe's operation unsafe. Several studies and discussions with the Nuclear Regulatory Commission led the operator to close the plant voluntarily in October 1991 to start embrittlement testing sooner than planned.

Northern States Power's Monticello plant, a boiling water reactor, is now the likely candidate as the first to relicense. Jim Lang, director for engineering and operations at the Electric Power Research Institute, said in late February, that a pressurized-water reactor replacement for Rowe hadn't been chosen yet to demonstrate relicensing. Lang said a subcommittee is working on it.

The Feb. 26 decision ends Rowe's 32-year operating life. The plant boasted a 74.3-percent capacity factor and 78.3-percent availability factor. The industry averages are 64.2

Continued on page 11



Hoover Dam upgrades serve as model

Upgrades at Hoover Dam served as a model for Hydropower 2002, an extensive Bureau of Reclamation efficiency and reconstruction program involving 52 hydro plants. More than 500 MW in upgrades were identified at Hoover alone. Here, a generator rotor is shown. See the full report starting on p. 19.

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Gas pipeline deregulation will affect fuel supply contracts

CHICAGO—Natural gas industry deregulation rules due out this month could hit electric utilities with long-distance pipeline contracts "like appendicitis—they'll feel a sharp, intense pain, doubling them over," warned James Bowe, partner in the law firm Hunton & Williams, at a recent conference here.

Bowe, whose firm specializes in energy law, noted that the "Mega-NOPR," the massive Notice of Proposed Rulemaking issued for the gas pipeline industry by the Federal Energy Regulatory Commission July 1991 is due to become a formal proposal this month. A final rule is scheduled to be put into effect between October 1992 and January 1993.

Purpose of the new rule is to increase competition, open access to pipeline services, and allow market pricing to replace FERC-imposed rates where possible. Major impact would be on 86 long-distance gas-pipeline companies and their customers.

If "Mega-NOPR" becomes "Mega-Rule," Bowe added, it "will rewrite the rules under which natural gas is transported, bought, and sold." It would also "profoundly affect each electric utility that purchases or transports natural gas for its own consumption, each utility that purchases power from others who use gas, and each utility that competes against other electric utilities

that rely on gas."

Bowe made his comments at a conference on natural gas for electric power generation jointly sponsored by the Institute for Gas Technology, an arm of the gas industry, and the Edison Electric Institute.

The main reason for the sharp pain to current pipeline users, Bowe explained, is the provision in Mega-NOPR that would re-allocate existing interstate pipeline capacity by forcing abandonment and renegotiation of existing contracts.

Uncertainty slows projects

Bowe noted that he represents some cogeneration projects that were financed years ago on the basis of long-term gas supply contracts that now may be "by the board." Bowe questioned how the investment community would react to this re-allocation. He said he is involved in two power generation project financings right now in which the banks will not close until the final rule is out and they see what it is.

For utilities and other power generators with no current commitments, the reallocation of pipeline capacity would be a "great equalizer," giving them an opportunity to acquire transportation capacity, said Bowe. "Regardless of whether an electric utility is a 'have' or a 'have-not,' it will be well advised to par-

ticipate in the proposed restructuring proceedings," he suggested.

Another provision of Mega-NOPR that would affect electric utilities is the unbundling of pipeline services such as transportation services, storage services, and gas sales. Rate setting mechanisms also would change. Curtailment priorities are altered. Electric utility gas customers have a major stake in all these changes.

Financial weakness

Increased competition and increased uncertainty due to these proposed changes will increase the risks in the gas pipeline industry, pointed out Marcus Dash, a partner in the investment firm, Goldman, Sachs & Co., at the conference. That could be a problem because the gas pipeline industry is financially fragile, he explained: "Pipeline company credit strength is pretty awful."

Dash noted that the securities of the "preponderance" of pipeline companies are rated BBB, the lowest investment grade—the rating one notch above the "junk" level. There was a 23-percent decline in the average rating during the 1980s, he noted. Virtually the entire industry was recently put on "credit watch" status by one of the security rating agencies, a warning that ratings could fall further. Recent bankruptcies

of major pipeline companies also has the financial industry jittery.

Major source of the weakness has been what the gas industry sees as extremely depressed gas prices. Now, Mega-NOPR provisions such as the annulment of existing contracts adds to the uncertainty.

Kenneth Lay, chairman of Enron Corp., a pipeline company in good financial standing, agreed with Dash at the conference, saying, "We have a very fragile industry financially." Noting the recent bankruptcies, he warned that one or two other companies are vulnerable.

Sources of current problems

Lay blamed many of the current problems in the industry on regulatory overkill in the 1970s such as the 1978 federal Powerplant and Industrial Fuel Use Act that banned gas fuel for base-load power plants. The gas industry went from being a 20 trillion-cubic-foot per year industry in 1980 to a 16 TCF industry by the late 1980s, noted Lay. Deregulation (and repeal of the fuel use act) has improved the situation, but low prices are retarding a return to financial health. Lay noted that drilling for new gas is currently depressed with the fewest drilling rigs in operation since the 1930s.

50th annual meeting: Co-ops support \$700-M boost in loans

ANAHEIM, CA—The National Rural Electric Cooperative Association passed 53 resolutions at its 50th Annual Meeting, including qualified support for transmission access.

On another topic, Bob Bergland, NRECA executive vice president and general manager, expressed support for a rural economic development legislation that would add \$700 million to Rural Electrification Administration's (REA) insured loan program. NRECA says the money would create 20,000 jobs by helping finance long-delaying rural electric plant construction, replacement and maintenance.

- NRECA resolutions:
- Support transmission access, but seek curbs on self-dealing and cross-subsidies in any changed holding company law.
 - Support REA's action to protect co-op territory, and state and local efforts to resolve disputes and compensation agreements.
 - Question computer predictions of

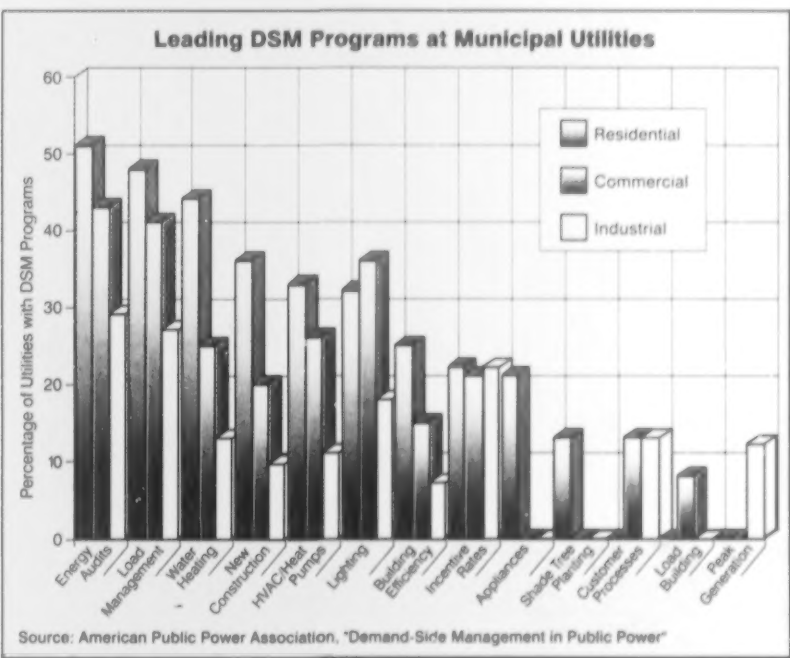
global warming and calls for funding for more research.

- Back compensation for consumers whose hydro facilities are affected by federal water policy changes.
- Request time to allow improvement of REA loan rules.

After a year-long study, NRECA staff would like 12 months to revise seven loan procedures prior to any privatization of the REA insured loan fund. NRECA is attempting to work with REA to streamline loan process, which would help end delayed construction. The revisions aim to make alternate sources of financing easier to use and modify rules concerning prepayment of refinancing of high cost Federal Financing Bank loans.

Also at the Feb. 9-12 annual meeting, the NRECA board re-elected the association president, Jay York, a Minnesota grain farmer.

NRECA represents about 1000 rural electric borrowers serving 25-million customers in 46 states.



Municipals expect growth in DSM spending

WASHINGTON—Municipal utilities spent \$253 million on demand-side management measures in 1991 and expect to spend \$453 million by 1994, a 79-percent three-year gain, according to a survey by the American Public Power Association.

The accompanying report, "Demand-Side Management in Public Power—The Quiet Revolution," says municipal utilities account for 17 percent of total utility spending on DSM, even though their revenues are only 13 percent of the total.

2.1% of revenue spent on DSM

The average utility responding to the survey spent 2.1 percent of gross revenue on DSM programs. In a statement on the report, APPA Executive Director Larry Hobart said public power utilities "are taking strong action to save energy and increase efficiency without the kind of bottom-line demand for returns on investment that investor-owned utilities say they need to get into DSM."

Forty-eight percent of 851 respond-

ing utilities had 2155 active DSM programs in 1991 (see graphic). The summer 1991 survey was sent to 2039 utilities. Among respondents, two-thirds served 3000 or fewer meters. The average was 1750. Los Angeles Department of Water and Power was the largest with 1.3-million meters.

Surplus capacity

Of the respondents, 46 percent said they had surplus capacity; 50 said they had a "capacity balance," several years away from needing additional capacity.

Survey respondents reported that DSM cut peak demand by 3.9 percent in 1991. This compares to an Electric Power Research Institute all-utility estimate of 3.7 percent in 1990.

Barry Moline, APPA's DSM program manager, conducted the study. He said, "Public power utilities are effectively delaying the need to build new power plants, saving their customers money." Moline said the survey "confirmed our intuition about how solid and aggressive the [DSM] programs are out there."

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State regulators support Clean Air Act guidance; oppose N-waste spending cap

WASHINGTON—State regulators took actions to try to protect ratepayers' \$8.4-billion investment in the high-level nuclear waste program. They also set guidelines related to Clean Air Act Compliance and resolved to protect state jurisdictional rights in national energy legislation.

At the 1992 Winter Meeting, the National Association of Regulatory Utility Commissioners (NARUC) resolved to support:

- Principles for states to follow when regulating utilities' compliance with the Clean Air Act Amendments of 1990. The principles, assembled with the help of the Keystone Center, include regulatory guidance for forming the compliance plan and regulatory review prior to and during implementation. An accompanying interim report provides detailed guidelines for commissions ranging from pre-approval of compliance plans to after-the-fact review.

- An attempt to persuade Congress to return to states jurisdiction over wholesale power transactions in national energy legislation. State regulators said holding company and Federal Power Act revisions attempt to create a national electric marketplace by increasing federally regulated wholesale transactions. NARUC argued that because most wholesale transactions actually will occur within a state or regionally, state commissions, not the Federal Energy Regulatory Commission, should regulate them.

- Legislation to remove the Office of Civilian Radioactive Waste Management from the federal budget process. Spending for OCRWM will exceed federal budget limits, but shouldn't be capped, said NARUC, because funds came from ratepayers, not taxpayers. Ratepayers paid \$619 million into the fund in 1991 and a total of \$8.4 billion to date.

- Expansion of funding for OCRWM over the \$392 million slated in the fiscal-year 1993 budget if needed to continue work on high-level nuclear waste disposal projects without interruption.

New nuclear siting rules to be tested

WASHINGTON—Three utilities, industry groups and the federal government agreed to test new siting procedures for standardized nuclear reactors.

The nuclear energy industry also agree to commit \$100 million to match federal funding for completing advanced light-water reactor designs.

The industry called the siting measure an "important step forward," which should culminate with the Nuclear Regulatory Commission issuing an early site permit by the end of 1995, said the U.S. Council for Energy Awareness.

Involved in the effort are the Department of Energy, Electric Power Research Institute, Nuclear Management and Resources Council and subsidiaries of Commonwealth Edison, The Southern Co., and Public Service Electric and Gas. DOE and the industry are splitting the \$20 million cost.

On the ALWR design effort, an association of utilities called Advanced Reactor Corp., will split the \$200 million in costs with DOE to complete both a passive and active design by 1995.

A broad industry commitment exists "to create the conditions under which the nation's utilities can order standardized advanced nuclear plants by the mid-1990s," said Sherwood Smith, chairman and president of Carolina Power & Light and chairman of the Nuclear Power Oversight Committee. He made the comments to Congress.

NARUC conditioned support for the increase on certain program improvements.

- Funding for the NARUC Nuclear Waste office to track the high-level nuclear-waste disposal program. Regulators have voluntarily funded the office for two years.

- Continued research and development of electric vehicles.

- Utilities' use of photovoltaic (PV) technology, including PV in integrated resource plans when cost-effective.

- The Environmental Protection Agency's Green Lights Program. Regulators said support didn't presume cost recovery for utility investment on Green Lights spending, but still encouraged commissions to promote the program.

- Added federal funding for the Low Income Home Energy Assistance Program (LIHEAP) and Weatherization Assistance Program (WAP).

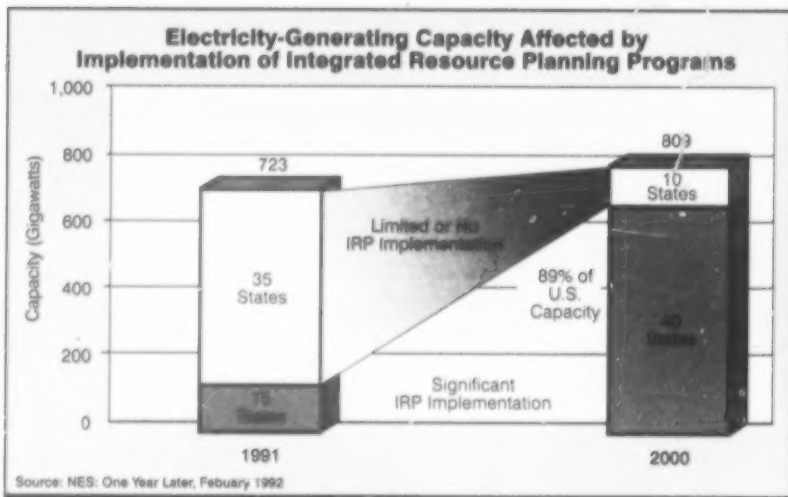
Clean Air Act guidelines

NARUC also:

- Urged Congress to fairly collect fees for decommissioning and decontamination of uranium-enrichment facilities. NARUC and other industry groups oppose a proposed 0.33-mil per kilowatt-hour fee for all U.S. nuclear power production (EL&P, 2/92, p. 1) based on 50 percent of expected cleanup costs.

U.S. utilities have purchased just 30 percent of these services, said NARUC. The method doesn't reflect the amount of services used in the past, or use by the Dept. of Defense and foreign DOE customers, regulators noted.

- Supported stable, long-term policy providing tax incentives for solar, wind, geothermal and biomass technologies.



National Energy Strategy: 1-year progress updated

WASHINGTON—Progress of the Bush Administration's National Energy Strategy was updated in a "One Year Later" report. Congress had failed to produce a final energy policy bill at the time of the report's release.

Ninety initiatives in NES do not require legislation. (See also EL&P, 1/92, p. 8.)

Among key achievements, released in the administration's report, were:

- An executive order to cut energy consumption in federal buildings by 20 percent by the year 2000.
- Department of Energy rules on lighting and appliance efficiency.
- Higher funding for conservation and

electric and hybrid vehicle research and development.

- A U.S. advanced battery consortium, a four-year, \$260-million effort.

- An Internal Revenue Service clarification of tax treatment for efficiency incentives.

- Streamlined hydropower licensing, and proposed natural gas pipeline regulation reform.

- Transmission-access policy via Federal Energy Regulatory Commission decisions.

- Increased integrated resource planning (IRP) efforts at federal power marketing administrations. (See graphic for overall increase in IRP programs.)

Power still flows in oldest U.S. transmission lines

BUTTE, MT—Montana Power Co. might have the world's oldest transmission lines still in service. The Missouri River lines A and B were installed between 1900 and 1902 to carry power from the old Canyon Ferry power plant at Helena to Butte—a distance of 63 miles.

The lines were built with western red cedar poles and have almost 95 percent of the original poles still standing.

Ed Hildreth, purchasing agent, Montana Power, says that the power transmitted over these lines originally was used for the operation of the Colorado Smelter just east of Butte and for the mammoth 900 hp compressor at the Anaconda Mine.

According to Hildreth, these two lines

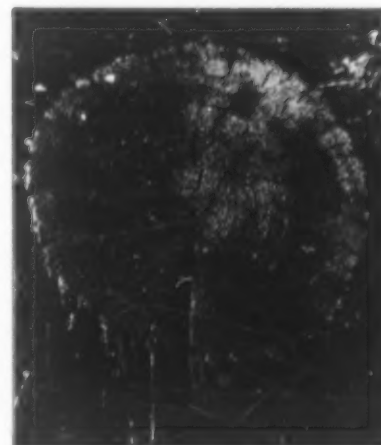
were probably the first real transmission lines in America and possibly the world. For a time, they were the world's highest-rated voltage lines at 60 kV. Presently, the lines operate at 69 kV.

A 1965 inspection report on the A line states that when the original lines were constructed through the wilderness between Boulder and Butte, a wagon road was cut through the timber and into a mountainside, necessitating the dynamiting and moving of large quantities of rock.

Where the lines crossed a swampy area at the 7000 ft. level, a one-mile long roadway was constructed. Large poles were laid in the swamp, then small poles acting as stringers were laid across these poles, and 3-inch saplings



Two 60-kV lines built in 1900-1902 are still operating with almost 95 percent of the original poles still standing. Only about five percent have been stubbed to prolong their life. Photos courtesy of Montana Power Co./Western Red Cedar Association.



Cross section of this 90-yr-old cedar pole shows the effects of weather cracking but no decay.

laid crossways to the stringers to form the roadway's deck. The roadway is discernable today but not usable.

Two major programs

There were two major stubbing programs in 1924-25 and again in 1941 and 1945. The stubs used in 1924-25 were heavily creosoted, the majority of which were found to be "as sound as the day they were installed."

Between 1928 and 1932, arsenic-treated stubs were used and "the majority of these indicate a definite need for repair." The report says that "it should be noted that many of the original poles still stand unstubbed and are suitable for many additional years of use."

A 1988 inspection showed that of the 1430 original western red cedar poles, 1355 are still in service, with 779 having been stubbed for continued use. Hildreth says, "That is an impressive performance by anyone's standard."

COMMENTARY

Utilities and the elements

There will be a United Nations conference in June that is intended to produce a world treaty on global warming. There will be intense pressure to produce a treaty that calls for national carbon dioxide emission caps and, possibly, emission reductions. Many industrialized nations have already endorsed such a policy. The U.S. has not—yet—but the pressure is building. Global warming has become one of the key issues in the presidential election campaign.

The effects of a restriction on carbon dioxide emissions on the utility industry would be immense. Concern about this issue is already having an impact: several states are imposing carbon-dioxide emission penalties on fossil-fired generation options in their least-cost-planning exercises.

Global warming is just one example of the dominant role played by environmental issues in our industry. This month we begin a series of special reports on electric utilities' interaction with the environment. This month we explore utilities and water. In August the subject will be air, and next February it will be the land.

Utility operations have an obvious impact on the elements—the physical environment—and the elements, conversely, play an integral role in the production and delivery of electricity. The political sensitivity of that interdependence call for careful handling.

Environmental concerns are not limited to global issues. They are not even limited to national issues, although the 1990 Clean Air Act Amendments' national acid rain regulations are changing the way utilities think about plant operations. Local, grassroots environmental issues are becoming at least as important as the big ones. In fact, for siting new plants, local issues tend to be the most important.

For example, local concerns over steam plant impact on waterways has led to widespread adoption of dry condenser cooling technology over the past five years. This is a significant development in power plant technology that is not mandated by any federal or state law. Several dozen non-utility power plants are now in operation or under construction with non-evaporative cooling systems due largely to local environmental concerns. The trend is expected to spread to larger utility-scale plants, as described in our water article this month.

Most of the environmental interdependence occurs on the power production side of the business, but power delivery is not immune. In fact, concern over the effects of electric and magnetic fields existing around electrical equipment—ranging from extra-high-voltage transmission lines down to household appliances—is rapidly becoming one of the most troublesome environmental issues. This one is particularly difficult to handle because regulation is beginning so far ahead of any technical definition of the problem that planners have no way to predict its ultimate impact.

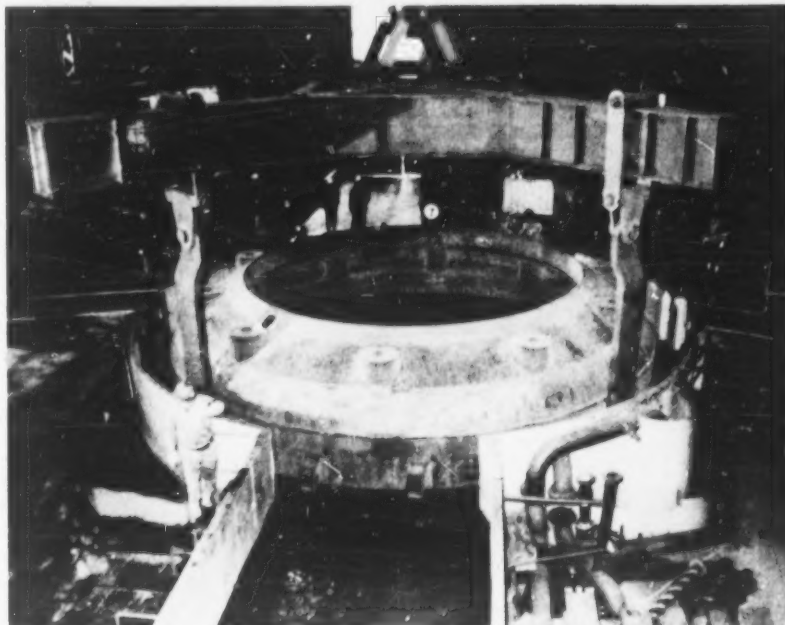
Does all this mean it will be impossible to generate and transmit bulk electrical power in the future? I don't think so. It means it will be more difficult to get approval for new facilities. The new facilities will cost more than they have in the past.

However, the experience of non-utilities in recent years is instructive. They have flourished in this new environment, but they have paid a price. They've been forced to adopt new dry cooling methods, selective catalytic reduction systems for reducing nitrogen oxide emissions, and other costly and innovative cleanup technologies. But they've been able to site hundreds of new power plants, many of them much closer to populated areas than utility plants are typically located. They've shown that it can be done.

Dealing with environmental issues in the 1990s poses a challenge, but it's a challenge that we can meet.

Robert Smock, Editorial Director

Construction of second GE advanced design nuclear reactor starts in Japan



Construction of the second advanced design nuclear power plant has begun in Japan at Tokyo Electric Power Co.'s Kashiwazaki-Kariwa site northwest of Tokyo. Work was started on the first unit in September 1991. General Electric Nuclear Energy is providing the reactors, nuclear fuel and turbine generators for the \$1.4-billion project. Shown above is a massive forging for the bottom head, internal pump region of the reactor vessel for one of the advanced boiling water reactors. When completed, the station will output a total of approximately 8.2 million kW, according to GE.

NEWS BRIEFS

JILL MINNER, Assistant Editor

Drought hurts outlook for hydro generation

Both Idaho Power and Bonneville Power Administration predict that poor hydroelectric generating conditions during the first quarter of 1992 will continue throughout the year. Light precipitation, low reservoir levels, and new flow requirements for salmon have contributed to the worsening outlook. BPA said it has already spent almost \$40 million to purchase power from other sources, and Idaho Power has put a transmission project on hold for at least a year to contain costs.

Business briefs

Houston Lighting & Power Co. has contracted with **Ebasco Constructors Inc.** for the turnkey construction of HL&P's first combustion-turbine cogeneration project. Ebasco said it will provide engineering, design, procurement, construction, startup and performance testing services for the 160-MW plant which will be located in LaPorte, TX. The project is scheduled to be finished by January 1995, according to Ebasco.

Cypress Energy Partners, a joint venture between **NRG Energy Inc.** and **Black & Veatch Power Development Corp.**, has agreed to develop, construct and operate a coal-fired power plant near West Palm Beach, FL, and sell the power to **Florida Power and Light Co.** Construction of the two-unit, 800-MW plant is scheduled to begin by early 1994, with service expected by 1997-98. Independent power producer NRG is an affiliate of Northern States Power Co.

TransAlta Resources Investment Corp. and **Alberta Natural Gas Co. Ltd.**, participants in a joint venture cogeneration project in British Columbia, have signed a letter of intent with the **Sacramento Municipal Utility District** to negotiate a long-term power sales contract. The joint venture said its proposed cogeneration plant would supply SMUD with 130 MW for 30 years beginning in January 1996. Construction of the proposed \$150-million facility would begin in the second quarter of 1994, according to TransAlta.

Siemens AG and **United Technologies Corp. (UTC)** have signed an agreement which gives Siemens continuing access to aircraft-derivative gas-turbine components technology developed by UTC's Pratt & Whitney (P&W) division. The agreement expands a 1988 alliance in which a unit of P&W and Siemens Power Generation Group (KWU) cooperated in the advancement of components that could be used in Siemens' next generation of large industrial gas turbines.

GE Power Generation will supply up to 15 gas-turbine generators to **The Southern Company**, owner of Alabama Power, Georgia Power, Mississippi Power, Gulf Power and Savannah Electric. GE said the contract commits The Southern Company to purchase at least six units which are expected to begin commercial operation in 1995 and 1996.

Public Service Electric and Gas Co. has ordered four gas turbine-generators for its Bergen Generating Station from **Siemens Power Corp.** The utility is repowering its facility in two phases, the first to be completed in 1995. PSE&G has an option to purchase four additional units for the second phase, scheduled for service in 1998, according to Siemens.

Commonwealth Edison Co. has chosen the **Atlantic Group** to perform motor-operated valve overhauls at the Zion Nuclear Power Station. Under the contract, Atlantic will provide quality control, labor, supervision, tooling, and equipment during two scheduled refueling outages in 1992.

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Fluidized-bed uses and sizes to grow, says survey

LILBURN, GA—A panel formed to survey use of fluidized-bed boilers (FBBs) in the United States and Canada listed the most important recent advances in the field. The panel from top vendors to the field said the advances were pressurized FBC (fluidized-bed combustion), reheat applications, 150-MW and larger FBB sizes, SO₂ and NO_x control, move towards circulating beds, better control of size and consistency of fuel leading to more predictable performance, scale-up knowledge, and experience with a broader range of fuels.

The most important user trends the panel named were larger sizes of FBBs, burning of refuse and other difficult fuels, use of waste-coal-based fuels, larger-sized units, and purchases of FBBs by utilities.

The survey, published in 1991, went beyond its stated limited purpose to cover only the U.S. and estimated the worldwide market for FBBs as worth \$360 million in 1990, with \$250 million in the U.S. alone. It also estimated the world market would grow to \$800 million in 1995, with the U.S. portion at \$500 million.

This forecast was equivalent to a 15-percent average annual growth rate in

the U.S. and a 19-percent average annual growth rate worldwide during the period 1990-95.

These rates were estimated for 25 units worldwide in '90 and 50 in '95, with 12 in '90 sold in the U.S. and 25 sold in '95.

Unit sizes were noted as moving from 85-percent small (100-200 MW) and 15-percent medium-sized (200-1000 MW) in '90 to the '91 makeup of 70-percent small and 30-percent medium-sized.

The panel listed the U.S. FBB market leaders, in order, as Pyropower, ABB, Combustion Engineering, and Foster Wheeler, who together had 74 percent of the sales. But the panel also said these leaders' share would drop to 69

percent in 1993.

The panel of nine members affiliated with companies that develop, manufacture, and/or sell FBB products consisted of one company vice president, three engineering managers, three marketing managers, and two others.

The small size of the panel was justified by the survey taker, Future Technology Surveys Inc., on the basis that individuals affiliated with companies involved in a specific field of technology are considered a "homogeneous population." Therefore, the reasoning goes, within such a homogeneous group, a sample size of 5-10 generally is sufficient to provide accurate results for a survey.

Utilities get 58% of rate hikes they seek

WASHINGTON—To get a rate hike the size it really wants, a utility should ask for an increase 71 percent larger than that amount.

Over the period 1981-1990, investor-owned utilities received \$42.18 billion, after filing for \$72.13 billion in rate increases, according to recent statistics from the Edison Electric Institute. (See table.)

Utilities received an average of 58.5 percent of the amount they sought during that period. For each five-year period, the averages approved as a percent-age filed were nearly identical.

Rate Increases Filed and Approved 1981-1990, Investor-Owned Utilities (\$ Millions)			
Year	Filed	Approved	Approved as % of Filed
1981	\$11,902	\$8,341	70.1
1982	11,923	7,629	64.0
1983	12,783	5,373	42.0
1984	7,524	4,745	63.1
1985	8,310	4,687	56.4
1986	3,758	2,881	76.7
1987	5,327	2,304	43.3
1988	2,679	2,099	78.4
1989	3,778	1,855	49.1
1990	4,146	2,266	54.7
1981-90	72,130	42,180	58.5

Source: Edison Electric Institute, ELAP

from page 13

Managing change...

ment over control. That model should emphasize that:

- 1) Control and coordination of work are based on shared organizational goals and expertise.
- 2) Management acknowledges legitimate claims of multiple stakeholders.
- 3) Gaining people's commitment will lead to enhanced performance.
- 4) People are seen as appreciating assets.
- 5) Work is being designed to emphasize the whole task, instead of separating thinking from doing.
- 6) Adaptability and ingenuity are considered desirable on-the-job qualities.
- 7) Shared goals and traditions are taking precedence over rules and procedures as ways of gaining commitment.
- 8) Bureaucratic structures are being flattened and more people are taking on the problem-solving responsibilities of management.
- 9) Rewards are being based more on mastery of skills and on group-oriented performance than on "Lone Ranger" grandstanding.
- 10) Greater effort is being made to give employment assurances.
- 11) Training and retraining are becoming major avenues to support the transition into this new model.
- 12) The "enemy within" viewpoint is being exchanged for one that views true competition as existing outside the organization.

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Inquire R.S. 6



ComEd, Consumers Power convert four units to natural gas

Commonwealth Edison Co. and Consumers Power Co. are converting generating stations from fuel oil to natural gas and fuel oil to save money.

At Commonwealth Edison

ComEd's Collins Generating Station, located near Morris, IL, has five equally sized units capable of producing 2794 MW gross units and is the company's only oil-fired steam plant. By converting three of the units to natural gas/oil, the utility expects to spend \$20-25 million and, depending on the costs of gas vs. oil, to break even on fuel costs or save up to \$70 million per year. Savings will be automatically passed on to customers through the fuel clause in their electric bills. The conversions are due to be completed by mid-1993.

To provide for the fuel supply, the Illinois Commerce Commission approved a 10-year contract between ComEd and Northern Illinois Gas. By terms of the contract, ComEd will have the option of using whichever fuel offers a cost advantage at any one time.

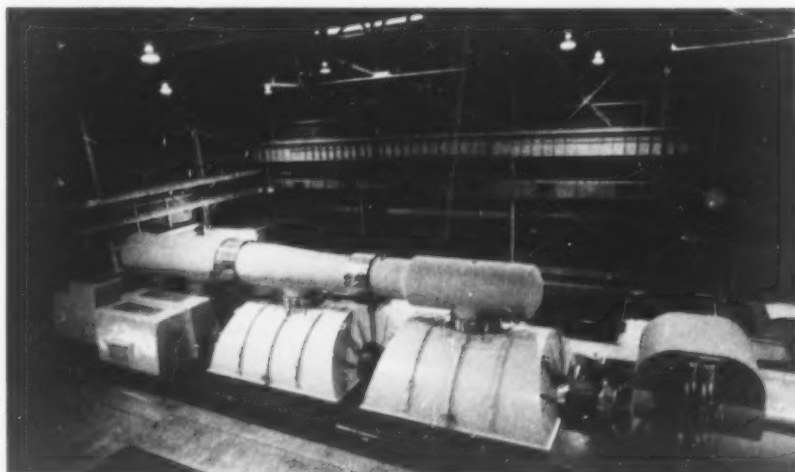
According to Jim Benetucci, conversion project engineer, the station will be able to change the three units from one fuel to the other in 20 min to an hour.

The new components that allow for this changeover include 24 low-NOx burners per furnace that will burn the natural gas or No. 6 fuel oil, a burner management system integrated with the existing boiler controls, and a 24-in.-diam gas pipeline into the facility. The pipeline will operate at 500-700 psig to carry a maximum of 5-million scfm of natural gas into the plant.

The other two oil-burning units are not being converted for natural gas usage. They were built so they could be quickly retrofitted to be capable of burning oil or coal. Edison officials consider this an important advantage in to-



ComEd's Collins Generating Station (top) is converting Units 2 and 3 in the foreground, and Unit 1, to burn both natural gas and oil. Consumers Power, meanwhile, is doing the same for Unit 4 at its Dan E. Karn plant (bottom).



day's rapidly changing fuel market.

At Consumers Power

Consumers is converting oil-fired Unit 4 at its Dan E. Karn generating station near Essexville, MI, so it, too, can burn either oil or natural gas. Plans call for the unit to operate on natural gas primarily in the summer when customer demand is high and gas supplies are less expensive and more abundant. The rest of the time, it will burn oil.

The \$8-million project cost is split, with \$7 million just for engineering and installing the burners, and \$1 million for additions and modifications for handling the natural gas.

The changes to the unit include: replacing 16 of the current burners with low-emitting gas/oil burners; replacing oil ignitors with gas ignitors; installing a 16-in. gas supply line on each side of the boiler and 10-in. headers across each burner deck; and putting in new controls and valving.

At maximum capacity, the unit will consume 4.3-million ft³/hr of gas to generate approximately 425 MW. When operated with both gas and oil simultaneously, it can produce 638 MW.

Notes Kurt Rudolph, senior engineer at Karn, the oil gun will be in the middle of each burner, with gas injectors located in a circle around it. Of the unit's 30 burners, 16 will be replaced with combined oil-gas types. The rest will be left as is, unless the utility can get a larger gas supply. In that case, they, too, will be converted to dual-fuel burners.

As with ComEd, Consumers will have to change the burner management system to accommodate the dual firing. However, unlike Edison's work, Rudolph says Consumers will also change the data acquisition and combustion control systems. The work should be completed by May of 1993.

Nuclear industry responds to maintenance rule

Henry Stein
Senior Editor-Power Production

MIAMI—The nuclear industry's response to the new maintenance rule is an example of the licensee's new approach to regulatory relations, according to Ron Simard, director of industry relations for the Nuclear Management & Resources Council, a nuclear utility organization. Speaking at the first EPRI Plant Performance Seminar here Feb. 24-25, he said that industry representatives are increasingly developing guidelines and procedures for the entire industry and submitting the ideas to the Nuclear Regulatory Commission for approval and agreement.

Maintenance rule

Simard spent some time discussing NRC's Maintenance Rule 10 CFR Part 65 that, he said, is broadly worded. It requires the industry to set performance goals for certain structures, systems, and components; to monitor the performance against those goals; and to assess the effectiveness of the maintenance. The intent is to place the burden on industry to develop the detailed implementation guidance—how goals and effectiveness are going to be set.

The implementation guide is scheduled to come out in July '93 and the rule is to be implemented in July '96.

Thomas Foley, senior engineer, Nuclear Applications Branch, NRC,

backed up Simard's remarks by stating that the commission now is working closely with NUMARC in developing results-oriented regulation.

He suggested NRC was seeking close cooperation with the industry in performing and evaluating maintenance at generating plants, rather than continuing what has had all the earmarks of an adversarial relationship.

Foley declared that the industry performance groups were going to be vital to the success of the ideas put forth in NRC's draft memorandum titled "Transmittal of Unreviewed Draft of Regulatory Guide to Implement the Maintenance Rule (10 CFR 50.65)." It proposes new methods of "results-oriented assessments of maintenance effectiveness" to be made by nuclear plant operators.

Simard also noted that for every outage that begins after Jan. 1, 1993, the planning and control will be assessed by the industry-set guidelines.

Another, more recent example he gave was access authorization. Industry took the initiative to determine the associated costs, and decided it could set guidelines that would improve the efficiency and save money when exchanging data and allowing workers or inspectors into the plants.

In another instance, a proposed rule on diesel engine reliability became performance-based.

Simard noted there were 33 utilities

and 75 people directly involved in the industry working groups and committees promulgating the guidelines. And eight utilities had agreed to take the draft guidelines to their plants to see if they work—Simard called it "V&V," or "verify and validate."

The NRC has gone along in two ways. First, the commission has asked for industry comments in the *Federal Register* on several areas where it thinks it can relax requirements without impacting safety. Second, the NRC has asked for comments on where it can become less prescriptive through regulations and make them more performance-based.

Simard said another *Federal Register* notice was due to come out Feb. 25, asking for ideas from outside the commission on where to reduce the number of its rules and regulations.

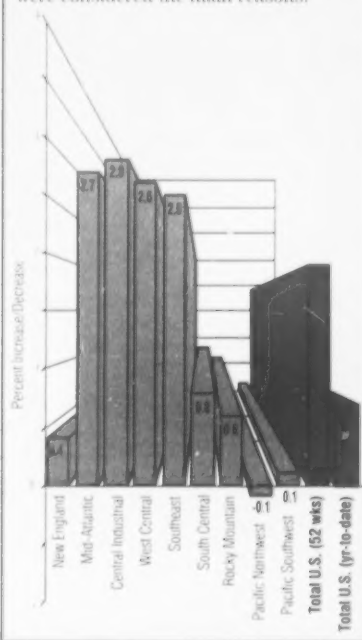
Where it began

The NRC made a survey two years ago and summarized what it heard in NUREG Report 13-95. It found NRC dominated licensee detailed work and licensees acquiesced to this domination. As a consequence of the survey, the commission initiated improvements in its methods of operating.

For instance, before issuing any new generic communication, the NRC staff must now apprise the commission of the safety issue involved and must solicit industry input.

ELECTRIC OUTPUT Growth Went Up

Changes in net electric output from the Mainland U.S. electric utilities continued to vary widely for the 52 weeks ending Feb. 26, as reported by Edison Electric Institute. Variations in weather in the country were considered the main reasons.



LATE NEWS

EEL, NRECA, APPA, and dozens of utilities threatened legal action to get EPA to comply with a 1980 law and decide if coal ash produced by utilities needs to be regulated. A 1988 EPA report called practices safe, but without formal guidance, uncertainty remains. **Western Resources (WR)** will be the new name for Kansas Power & Light Co., pending approval. KPL acquired Kansas Gas & Electric in a \$1-billion deal made final on April 1. KPL would become a division; KG&E, a subsidiary, of WR.

Northeast states plan NOx rules

Mark T. Hoske
News Editor

Regulators in the Northeast hope to devise regional guidelines for utility plant nitrogen-oxide emissions in eight states. The proposals would cut utility NOx by more than 50 percent for a May 31, 1995, deadline.

Affected utilities, which have had input in the process over the past year, seek more flexibility and system averaging before individual states make the guidelines into rules.

Final rules "will be subject to each state's regulatory adoption process and public comment process," the regional group said in a statement.

States must devise NOx guidelines to meet the Clean Air Act Amendments of 1990. States with ozone non-attainment areas, including a large area of the Northeast, have more stringent compliance concerns and must submit plans to the Environmental Protection Agency by Nov. 15. States not complying face federal penalties.

Costs depend on situation

Compliance costs are uncertain and depend on utilities' present controls and generation mix. Better-than-ex-

pected results from the 1995 deadline could ease compliance for the second of two deadlines, May 15, 1999. Compliance standards are set by the EPA.

The regional approach might benefit utilities by consistent regulation.

Combustion modifications will probably be enough for first-phase compliance, but more costly measures may be needed later.

"The numbers are certainly pretty low, but are intended to be achievable using only combustion modifications for the first phase," said Charles Carlin Jr., Northeast Utilities senior engineer in environmental compliance.

Second phase

The second phase, might require add-on controls, Carlin said, and could be considerably more costly.

The group, Northeast States for Coordinated Air Use Management (NESCAUM), consists of air regulators from Connecticut, Maine, Massachusetts, New Jersey, New Hampshire, New York,

Rhode Island, and Vermont.

Reasonably available controls

The NESCAUM strategy meets the utility boiler "reasonably available control technology" (RACT) requirements, adopted in March by the 12 Ozone Transport Commission states. OTC includes NESCAUM states plus Delaware, Maryland, Pennsylvania, and Virginia, with Washington, DC. OTC is working regionally to cut smog and ground-level ozone. A recent National Academy of Sciences report recommended that NOx cuts are more important than cuts in hydrocarbons.

For some states in this region utilities generate more than 20 percent of total NOx. Mobile sources contribute 60

percent.

Proposed reductions would have to be approved in each state.

NU, would have low compliance costs compared to other utilities, an estimated \$10 million for the first phase, Carlin said.

Also, Carlin pointed out, the final rules could cost less if they require compliance based on average annual emission measurements rather than continuous compliance.

Generation mix

Northeast Utilities generation mix includes 65 percent nuclear energy and 5-percent hydro. The rest is mostly oil, with one coal plant. NU already complies in Connecticut.

Transmission-access mandates will kill reliability, says NERC

PRINCETON, NJ—"Mandated transmission services could prove fatal to the standards of reliability the public deserves and expects," said the chairman of the North American Reliability Council in its 1991 annual report, released in March.

Earl Dille, NERC chairman, questioned if Congress really understood how the electric system works. Today's reliability depends on "close coordination among utilities in planning and operating," he noted.

Dille lamented, "Unfortunately, most of the legislative ideas being developed seem to ignore the benefits of increased coordination."

Owners should be compensated

If legislation mandates transmission use, facility owners should be fully compensated for all economic losses associated with the transaction, NERC noted. "Anything short of that penalizes the native-load customers who have footed the bill for the facilities in the first place," Dille said.

"Some proposed legislation gives FERC authority to decide whether certain purchases and sales could take place. NERC believes the utilities, which have the ultimate responsibility for operating electric systems and reliably supplying their customers, should make these decisions," the annual report noted.

Despite these comments, NERC President Michael Gent said NERC is "neither for nor against" any of the legislative proposals. NERC staff has spent hundreds of hours explaining the electric grid and differences to the phone system to Congress, Federal Energy Regulatory Commission, National Energy Board, Department of Energy, and utilities, Gent said.

A NERC "white paper" will make spe-

cific comments on various legislative proposals that will impact reliability.

Violations, reports, expansion

Other portions of NERC's 65-page annual report look back at major reliability topics of 1991 and ahead to future challenges.

Some key items include the following.

- NERC's Operating Committee predicted "interesting" discussions this year due to unintended violations in operating guidelines at several control centers. One 100,000 MWh of inadvertent Eastern Interconnection interchange during July-August "raised the ire of utilities from Florida to New England," the report said.
- "Impact of FGD Systems" is one of several generating unit reports by the NERC Engineering Committee, covering availability, maintenance and operations.
- A spare transformer database update was completed in December.
- Other studies on forecasting accuracy, voltage instability, voltage collapse, are being prepared. Electric Power Research Institute and NERC are studying and will report on an Eastern Interconnection frequency drop.
- NERC's Monitoring Working Group expanded its size. It conducts confidential assessments of a generating utility's control center operations and is working on ways for utilities to perform self reviews.
- NERC's Generating Availability Data System information completed its first phase of data switchover, from mainframe to PC applications, for information from the 1960s to 1991.
- Utilities asked for more than 70 percent of over 200 special data-retrieval studies conducted.
- Highlights from within 10 NERC regions are also featured.

Biggest NUG opens in June

LINDEN, NJ—The Linden Cogeneration plant, opening in June, "is the largest non-utility owned power plant in the country," according to developer,

owner, and operator, Cogen Technologies.

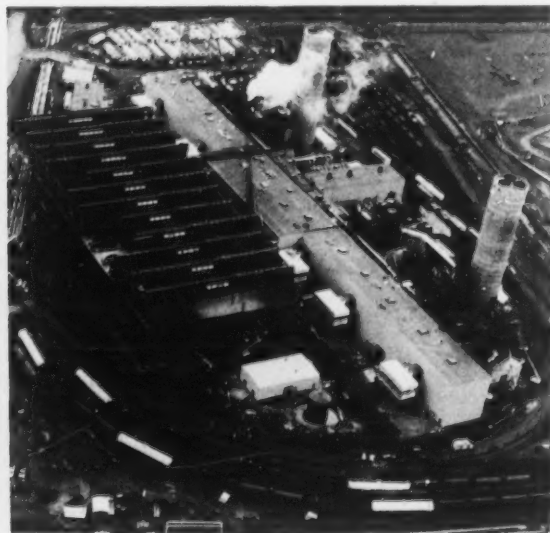
The \$500-million, 614-MW turbine plant will also produce up to 1-million lb steam for Exxon. Consolidated Edison Co. signed a 25-year contract to buy electricity.

Project Manager Ragan Phillips, a Cogen Technologies vice president, told EL&P the plant would come in under budget and might start by late May.

The five-unit, natural-gas-fired combined-cycle plant uses General Electric Co. gas turbines, and steam turbines.

To operate the plant, Cogen Technologies hired North American Energy Services, a venture of Pacificorp, Puget Sound Power & Light, Washington Water Power, and Portland General Electric Co.

Linden will be among the largest U.S. generating plants with a dry cooling system (EL&P, 4/92, p.23).



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Non-utility power, clean-air costs threaten some credit ratings

NEW YORK—Reliance on non-utility generation (NUG), and clean-air construction were among factors negatively affecting some credit-rating outlooks, according to a recent Standard & Poor's report.

However, generation construction also can negatively influence ratings—depending on the utility, regulators, and factors related to financial health and risk. S&P also cited too large a percentage of nuclear generation as a risk.

A factor limiting improvements in S&P ratings, or causing negative outlooks, was risk of significant costs related to compliance with the Clean Air Act Amendments of 1990 (CAAA).

Positive outlooks were linked to improving financial situations from completed construction and favorable rate recovery, cuts in operating and maintenance costs, and strong, sustained nuclear-plant operations.

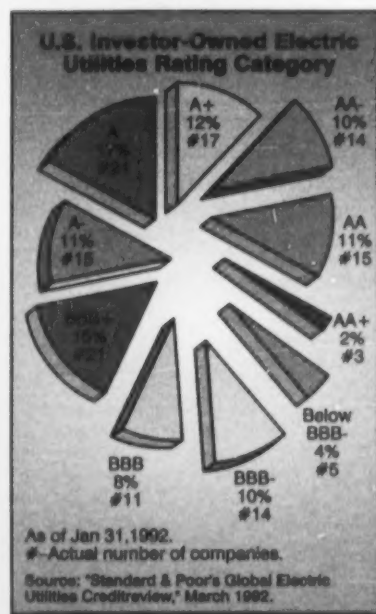
Six U.S. investor-owned utilities have positive rating profiles, two were listed negative and 18 more were stable, in the March 16, "Global Electric Utilities," by Standard & Poor's Credit review (see chart).

Among seven of Canada's utilities, two listed negative, one developing, the others, stable. U.S. municipal utilities and other non-U.S. utilities were also listed in the report.

Financial risks and rewards

Highlights included the following. •Detroit Edison Co. showed a positive outlook, with strong cash flow and willingness to reduce debt leverage despite expected rate cuts in 1993 and 1994.

•Niagara Mohawk Power Corp.'s outlook was positive, but fixed charges associated with increasing NUG electricity purchases could slow financial improvement. Earnings improved under



regulatory incentives, cost cutting, and "sustained" improvement in nuclear performance.

•Despite risks associated with increased CAAA construction spending, Duke Power Co., Georgia Power Co., and Indiana Michigan Power Co. received stable outlooks.

•For PacifiCorp, credit concerns were expressed for "management's zeal in pursuit of expansion," despite a recent Arizona Public Service deal "enhancing" the long-term operating position. Ratings outlook was stable.

•Ohio Power Co. had a negative outlook with huge acid-rain compliance costs and industrial customers "hard pressed to absorb" those costs.

•Virginia Electric & Power Co. also had a negative outlook. Growth requires 5000 MW of capacity by 2000, 74 percent with contracted purchases from non-utility generators. Purchased power "does raise concerns associated with operating reliability," said S&P. Associated fixed charges from the long-term contracts results in higher rate needs, S&P added.

EPA's Green Lights efficiency program exceeds expectations

WASHINGTON—The U.S. Environmental Protection Agency's Green Lights program celebrated its first birthday by exceeding expectations for progress.

The program allows companies to form voluntary alliances with EPA to analyze, install and promote profitable energy efficient lighting, using agency expertise to improve profitability and lighting quality.

Bob Horton, EPA program director, said more than 400 companies participated in the first year, twice the expected amount. Utilities, lighting and energy service companies, businesses, manufacturers, universities, and various units of government are among program participants. More than 33 utilities were involved as of March.

Program to grow 2-3 times faster

At the 400 companies, 77-million ft² has been targeted for relighting. At the end of the first year, about 20 percent of that area had been completed, yielding a 50-60 percent energy savings, about 53-million kWh, Horton said.

The EPA hopes to get 800-1200 more companies involved during 1992. In 1993, "We hope energy efficiency lighting will become the standard," Horton said.

Environmental benefits, if all U.S. companies made all profitable investments in lighting efficiency, would include a 10-percent, \$20-billion reduction in electricity bills, with a 4-percent cut in nitrogen oxide, a 7-percent reduction in sulfur-dioxide and a 4 percent drop in carbon-dioxide emissions (see related table). The CO₂ cut represents one-third of U.S. auto emissions. Lighting comprises about 25 percent of

U.S. electric demand.

In addition to profitability savings, program participants get objective reviews of available lighting technologies, cutting-edge software to analyze options and profitability, and a regularly updated database of financing sources, Horton explained.

Compares lighting to new plant

At the winter meeting of the National Association of Regulatory Utility Commissioners, several state regulators asked why EPA doesn't provide a figure showing simple payback on investment, rather than the more complex 20-year return on investment.

The more complex method, Horton said, considers factors that may be overlooked in a simplistic payback measure, such as relamping cycles and maintenance.

"We're trying to elevate payback in energy projects from a quick and dirty payback to thinking of it as they would as an investment in a new factory," Horton explained.

Most institutions use lowest first-cost lighting systems, rather than lowest life-cycle cost technologies, said EPA's "Green Lights Program: The First Year" report.

Horton also cautioned the stop-and-start nature of some utility and regulator-induced demand-side management programs. Huge swings in demand for products and services can hurt manufacturers and suppliers, Horton said.

Programs that only promote the most profitable investments for quick payback can damage future efforts, he added. NARUC endorsed the program with a resolution.

IEEE cites EPRI managers for work

WASHINGTON—The Institute of Electrical and Electronics Engineers (IEEE) has elected two Electric Power Research Institute project managers as Fellows. Joseph Porter, switchgear research and development manager, has been cited by IEEE President Eric Sumner for his "contributions to circuit breaker technology."

Porter received an IEEE Prize Paper Award in 1990 describing the design and testing of the world's first high-voltage direct current circuit breaker. Porter has worked on research projects on overhead lines, distribution and transmission substations programs with primary focus on switchgear, power system transients, instrumentation and electromechanical devices related to high-voltage power transmission. He formerly worked for General Electric Co. as manager of the High Power Laboratory.

Bruce Bernstein was cited by Sumner for "pioneering research leading to the understanding of the aging phenomena of extruded-dielectric high-voltage power cables."

Focusing on technology that controls aging of underground cables, Bernstein questioned assumptions and implemented superior diagnostic techniques to study physical and chemical

changes in polymers used in insulation of underground cables.

He currently manages projects for the Distribution and Underground Transmission Programs, and also guided research relating to polymeric materials, electrical insulation and cables



Joe Porter

Bruce Bernstein

for the Institute's Office of Exploratory Research.

Bernstein formerly worked as manager of Research and Development for the Facile Division of Sun Chemical Corp., Paterson, N.J., where he developed laminated composite materials to prevent moisture from entering power and communications cables.

While working as materials section manager at Phelps Dodge Cable and Wire Co., Yonkers, NY, Bernstein guided the first EPRI-sponsored research on water treeing in extruded cables.

DA/DSM Symposium call for papers issued

SAN FRANCISCO—In just two years, the International Symposium on Distribution Automation and Demand-Side Management (DA/DSM) has become a comprehensive forum in which industry leaders discuss these developing technologies and opportunities to defer major generation and power delivery expenditures. The Eureka Group is issuing a Call For Papers for the 3rd International Symposium to be held in Palm Springs, CA, Jan. 11-13, 1993. Papers are invited on these topics:

- Feeder automation.
- Customer interactive communications.
- Distribution SCADA.
- System integration.
- Smart substations.
- Use of real-time data.
- Network performance optimization.
- DA communications systems.
- RTUs, transponders, transducers.
- Fault sensing/circuit switching.
- Automatic meter reading.
- DSM implementation.

- Load control.
- Solid-state metering.
- Planning/staffing considerations.
- Economic evaluations/experience.

For more information about the call for papers, contact the Eureka Group at 415/747-9003, fax: 415/647-8892.

Utility financings increase 1990 to '91

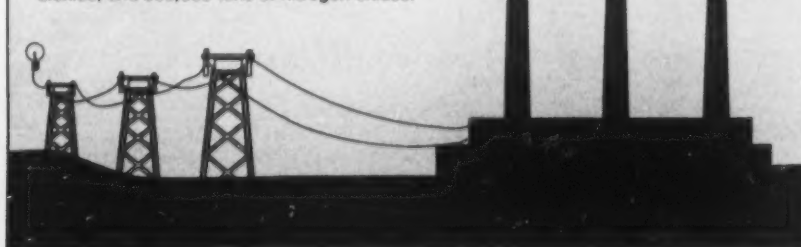
ATLANTA—Investor-owned electric utility financings increased to \$10.4 billion in 1991, up 25 percent from a year before, according to the final 1991 report from Ebasco Services Inc. Business Consulting.

The largest increase was in refunding, from \$1.8 billion in 1990, to \$4.1 billion in 1991.

Including natural gas, water and telephone utilities, investor-owned company financings increased 28 percent to \$13.9 billion in 1991, Ebasco said.

Energy-Efficient Lighting Prevents Pollution

If everyone in the United States used profitable energy-efficient lighting, we would prevent the emission of 232 million tons of carbon dioxide, 1.7 million tons of sulfur dioxide, and 900,000 tons of nitrogen oxides.



Source: EPA's "Green Lights Program: The First Year"

COMMENTARY

Gas and electricity: an uneasy alliance

The recent joint conference of electric utilities and the gas industry that was held in Chicago explored problems and opportunities for these two old antagonists. Formerly just competitors for the retail customer, the gas and electric industries are beginning a new relationship. The potential for natural gas as a power generation fuel is the reason for the change, but the new alliance is not proving easy to develop.

Historically, natural gas has been a regional fuel for electric utilities in the southwest and lower midwest. Now, wider use is foreseen. In fact, electric power generation is seen as the major growth market for the gas industry in the 1990s. For a gas industry beset by low prices and sluggish demand, electric utilities could be their savior. In fact, gas demand from non-utility power generators over the last five years has been the one bright spot in an otherwise dismal market picture. To a large extent, low gas prices have fueled the non-utility power trend. The gas industry would like to entice utilities to follow the path blazed by non-utilities.

Utility base-load power plants, both new and existing, are the target. There have been few commitments for new base-load plants in recent years, but the potential for growth has the gas industry interested. The acid-rain retrofit provisions of the Clean Air Act raise the possibility that coal-fired plants will switch to natural gas to reduce sulfur dioxide emissions.

Deregulation is another issue the two industries share. A cloying federal regulatory burden that has contributed to the gas industry's problems is being lifted. Open access, competition, and market pricing are coming to the gas pipeline industry. The gas pipeline example is cited by some as a pattern for opening up electric transmission. Gas deregulation will have more immediate impact on electric utilities in their role as gas customers.

Unfortunately, the new alliance has some problems. Electric utilities, to a large extent, do not feel natural gas offers sufficient security in future availability and price predictability to be a reliable base-load power plant fuel. They do not trust the gas delivery system—if delivery capacity runs short residential gas customers will get a higher priority, leaving the power plant without fuel, electric utilities fear. Gas is OK for non-utilities building small power plant projects with a high return on investment and without a franchise obligation to deliver power on demand, they say, but not for us. Salesmen on the gas side of combination utilities can't get fuel buyers from the electric side to return their calls. This distrust can be seen clearly in the announced Clean Air Act compliance plans. There have been a dozen scrubber commitments, but no announcements that coal-fired units will be switched to natural gas.

Kenneth Lay, chairman of Enron Corp., a major long-distance gas pipeline company, told the joint conference that there is plenty of gas available in the U.S. at low prices. He said his firm is willing to enter into contracts with fuel purchasers for fixed prices for periods of up to 15 years. He said the rest of the industry will have to step up with similar long-term contract offers to give the electric industry the security it needs, and he expects that to happen.

Robert Smock, Editorial Director

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ABMA honors utilities for work on Zimmer



The American Boiler Manufacturer's Association recently presented its 1991 Public Service Award for Energy/Environment Achievement to American Electric Power Service Corp., Dayton Power & Light Co., Columbus & Southern Operating Co., and Cincinnati Gas & Electric Co. for their work in the nuclear-to-coal-fired conversion of the Zimmer plant. Pictured above at the award ceremonies, left to right, are: Russell Mosher, executive director, ABMA; Kerner Smith, president, ABMA; Pete Forster, chairman, president and CEO, DPL Inc.; Richard E. Disbrow, chairman and CEO, AEP; Jackson H. Randolph, president and CEO, CG&E; and Don L. McKenzie, vice president of marketing and sales-energy division, Zurn Industries Inc.

News Briefs

JILL MINNER, Assistant Editor

NRC, Westinghouse to test advanced reactor

Westinghouse Electric Corp. has reached an agreement with the Nuclear Regulatory Commission (NRC) on an experimental test program to support design certification for the AP600, Westinghouse's advanced 600-MW reactor design with passive safety features. Westinghouse says it will share data with the NRC on three testing programs, two in the United States and one in Italy.

Tests on the AP600 passive containment cooling systems are currently being conducted at the Westinghouse Science and Technology Center near Pittsburgh, PA. Testing on the one-fourth-scale AP600 low-pressure integral systems is scheduled for Fall 1992 at Oregon State University in Portland, OR. In 1993, Westinghouse, in cooperation with the Italian utility ENEL, is planning to conduct full-pressure integral systems tests in Piacenza, Italy. The NRC is also considering conducting tests of AP600 large-scale, full-height, full-pressure integral systems in Tokai-mura, Japan.

New refrigeration/ac system is ozone-friendly

The New York Energy Research and Development Authority announced the introduction of the nation's first chlorofluorocarbon-free supermarket refrigeration and air conditioning system. The system, located at a supermarket in Glens Falls, NY, uses a new alternative to conventional chlorofluorocarbon (CFC) refrigerants that has no ozone-depleting potential. It also has a 90-percent lower global warming factor than most CFC refrigerants, according to the Energy Authority. "In addition to this being the first store to use the new CFC-free refrigerant, R-134a, the new compressor technology will make the store one of the most energy-efficient in the country," stated Hugh G. Farrington, president and chief operating officer of Hannaford Bros. Co., owners of the supermarket chain. Financial sponsors of the project are: New York State Energy Research and Development Authority, Empire State Electric Energy Research Corp., and Electric Power Research Institute.

WPS surpassed conservation goals in 1991

Wisconsin Public Service Corp. (WPS) met its energy conservation goals in 1991 at a lower cost than expected. The utility said its original \$28-million budget was intended to conserve 15 MW. However by year-end WPS found it had spent only \$17 million and conserved a total of 19 MW. WPS said two conservation programs it introduced last year, a fluorescent lighting program and an appliance turn-in program, surpassed their goals within the first six months. "Both programs were overwhelmingly popular with our customers," noted Bud Trembl, WPS manager-marketing programs and services.

Electric vehicle associations merge

The Electric Vehicle Association of the Americas (EVAA) and the Electric Vehicle Development Association (EVDA) said they have merged in order to provide an accurate, authoritative, and accessible clearing house of up-to-date information on the development of the electric vehicle. "Having a focal point for the gathering of credible information on the development and deployment of electric vehicles in the United States and worldwide is important to our electric vehicle program," stated Robert L. Davis, electric vehicle program manager at Chrysler. Headquarters for the new organization, which will retain the EVAA name, will be located in Washington, DC.

ABB Power T&D reorganizes

ABB Power T&D Company Inc. said it has made a number of organizational changes. ABB Power Distribution Inc. has merged with ABB Power T&D, and ABB Power Systems Inc. and its former Advanced Systems Technology group have relocated to Raleigh, NC, where ABB's Transmission Technology Institute is located. "As the company has grown, we've brought together several areas that had been dispersed throughout ABB. Now we are integrating them into a single structure that reflects the way our customers do business," explained ABB Chief Operating Officer Joseph A. Carey Jr.